

REMARKS

Claims 26-35 are added herein. Claims 1-35 now remain pending in the application.

Claims 1, 2-4, 7, 23 and 24 over Takeda

In the Office Action, claims 1, 2-4, 7 and 24 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 6,385,021 to Takeda et al. ("Takeda"), with claim 23 rejected under 35 U.S.C. §103(a) as allegedly being obvious over Takeda in view of ESD Protective Serpentine Block – Provides Electrostatic Charge Bleeding of Signal Input During Initial Cable Plugging Period by Detector Switch to publisher Derwent Information LTD ("Derwent"). The Applicants respectfully traverse the rejection.

In order for Applicants' invention to be anticipated by Takeda, all of the elements recited in Applicants' claims must be disclosed in Takeda.

Claims 1, 2-4, 7, 23 and 24 recite a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration an electrical over stress, the electrical over stress occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected.

The Examiner argued in paragraph 7 of the Office Action that an electrical over stress event "may arise, for example, from electromagnetic pulses, an electrostatic discharge, lighting, a buildup of static electricity or be induced by the touch of a human hands, or the operation of electronic or electrical components." However, the broadest reasonable interpretation cannot be inconsistent with the specification, which illustrates the claimed electrical over stress event (see, e.g., page 3, lines 10-16). Hence, "claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation.'" MPEP § 2111.01 at 2100-37 (Rev. 1, Feb. 2000) (quoting In re Marosi, 218 USPQ 289, 292 (Fed. Cir. 1983)(emphasis in original)).

Nevertheless, to speed prosecution claims 1, 2-4, 7, 23 and 24 are amended herein to recite an electrical over stress occurs during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected.

The Examiner acknowledged that Takeda's invention is directed toward a solution for electrostatic discharge. A thorough reading of Takeda fails to provide any solution for an electrical over stress event (EOS), much less disclose or suggest a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event, as recited by claims 1, 2-4, 7, 23 and 24.

The Examiner relied on Derwent to allegedly disclose an electrical over stress event associated with contact with a cable (see Office Action, page 10). However, Derwent's invention is also directed towards ESD when a cable is plugged into an I/O serpentine block. Thus, Derwent, like Takeda, fails to provide any solution for an electrical over stress event (EOS), much less disclose or suggest a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event, as recited by claims 1, 2-4, 7, 23 and 24.

Thus, Takeda in view of Derwent would still fail to disclose or suggest a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event, the electrical over stress occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected, as recited by claims 1, 2-4, 7, 23 and 24.

The Examiner alleged in the Advisory Action that the EOS event claimed is not substantially different from an ESD event, with the only difference between the two conditions being the duration of the over-voltage. The Examiner alleged that Takeda discloses a circuit that can protection for an ESD event can also respond to electrical over stress condition for the entire duration of a over-

voltage event at col. 1, lines 56-65 and col. 4, lines 45-49). The Applicants respectfully disagree.

The Examiner is incorrect in that the only difference between an ESD event and an EOS event is the duration of the over-voltage event. The magnitude of over-voltage between an ESD event and an EOS event are substantially different. An ESD condition can typically provide a voltage spike of thousands of volts. In contrast, Applicants' claimed features are directed toward EOS conditions that are limited to the voltages being carried by a powered device.

Moreover, as Applicants disclose in their specification conventional electrostatic discharge shunts or clamps are designed to handle an ESD event, and are not suitable for alleviating the potential for damage resulting from a typical EOS event. Conventional ESD voltage triggered clamps, such as that used by Takeda, are based on RC time constants relative to the duration of a typical ESD event (see Takeda, col. 4, lines 35-52). Thus, ESD clamps such as that used by Takeda are adequate only for ESD protection, since ESD voltage spikes typically last only a few microseconds. Because the duration of an ESD event and an EOS event are different a circuit to handle such events must be differently designed to handle that particular event. Someone of skill in the art looking to find a solution to an EOS event would not look to a circuit designed for an ESD event because of the significant differences in which such events are handled. Thus, Takeda's circuit that is pre-programmed with an RC time constant to shunt an over-voltage event for a few microseconds provides no suggestion for application to an EOS event that can last for much longer than Takeda's RC time constant is designed to handle.

Accordingly, for at least all the above reasons, claims 1, 2-4, 7, 23 and 24 are patentable over the prior art of record. It is therefore respectfully requested that the rejection of these claims be withdrawn.

Claims 9, 10, 14, 15 and 19 over Wu

In the Office Action, claims 9, 10, 14, 15 and 19 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 6,552,886 to Wu et al. ("Wu"). The Applicants respectfully traverse the rejection.

In order for Applicants' invention to be anticipated by Wu, all of the elements recited in Applicants' claims must be disclosed in Wu.

Claims 9, 10 and 14 recite a system relying on an electrical over stress shunt activated during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected. Claims 15 and 19 recite a system and method of turning ON a low resistance path between a power rail and a ground rail for a duration of an occurrence of a detected electrical over stress condition, the EOS event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected.

The Examiner alleges that Wu discloses an electrostatic discharge shunt and turning ON a low resistance path between a power rail and a ground rail for a duration of an occurrence of a detected ESD condition (See Office Action, page 4). Thus, the Examiner acknowledged that Wu's invention, like Takeda's invention, is directed toward a solution for electrostatic discharge. A thorough reading of Wu fails to provide any solution for an electrical over stress condition (EOS) occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected, much less disclose or suggest a system relying on an electrical over stress shunt and a system and method of turning ON a low resistance path between a power rail and a ground rail for a duration of an occurrence of a detected electrical over stress condition, as recited by claims 9, 10, 14, 15 and 19.

Accordingly, for at least all the above reasons, claims 9, 10, 14, 15 and 19 are patentable over the prior art of record. It is therefore respectfully requested that the rejection of these claims be withdrawn.

Claims 5, 6, 11-13, 16-18 and 20-22 over Takeda and Wu

In the Office Action, claims 5 and 6 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Takeda in view of U.S. Patent No. 6,552,886 to Wu et al. ("Wu"), claims 11, 16 and 20 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Wu, and 12, 13, 17, 18, 21 and 22 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Wu in view of Takeda. The Applicants respectfully traverse the rejection.

Claims 5 and 6 recite a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of an occurrence of a detected electrical over stress condition, the EOS event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected. Claims 11-13 recite a system relying on an electrical over stress shunt activated during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected. Claims 16-18 and 20-22 recite a system and method of turning ON a low resistance path between a power rail and a ground rail for a duration of an occurrence of a detected electrical over stress condition, the EOS event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected.

As discussed above, both Takeda's and Wu's inventions are directed toward solutions for ESD. Neither Takeda and Wu disclose or suggest application of any of their teachings for a solution to an electrical over stress (EOS) condition/event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected. Thus, Takeda in view of Wu would still fail to disclose, teach or suggest a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event used during, a system relying on an electrical over stress shunt, and a system and

method of turning ON a low resistance path between a power rail and a ground rail for a duration of an occurrence of a detected electrical over stress condition/event, used during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected, as recited by claims 5, 6, 11-13, 16-18 and 20-22.

Accordingly, for at least all the above reasons, claims 5, 6, 11-13, 16-18 and 20-22 are patentable over the prior art of record. It is therefore respectfully requested that the rejection of these claims be withdrawn.

Claims 8 and 25 over Takeda in view of Whitney

In the Office Action, claims 8 and 25 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Takeda in view of U.S. Patent Application Publication No. 2002/0024791 to Whitney et al. ("Whitney"). The Applicants respectfully traverse the rejection.

Claims 8 and 25 recite a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event, the electrical over stress event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected.

As discussed above, Takeda fails to disclose or suggest any application to a EOS event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected, much less disclose or suggest a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event, the electrical over stress event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected, as recited by claims 8 and 25.

Whitney appears to disclose a system and method of protecting devices from ESD events and overcurrent conditions (See paragraph 0002). A varistor 302 is shown as attached between a power source Vin and GND (See Whitney, Fig. 11, paragraph 0091).

Whitney is the only reference that appears to even mention EOS events. However, Whitney relies on a varistor between a power source Vin and GND not disclosing or suggesting any type of switchable path between a power rail and a ground rail, much less disclose or suggest a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event, the electrical over stress event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected, as recited by claims 8 and 25.

Thus, Takeda in view of Whitney would still fail to disclose, teach or suggest a switchable low resistance path between a power rail and a ground rail, the low resistance path being adapted to be switched ON for a duration of a electrical over stress event, the electrical over stress event occurring during a difference in an order in which connections are made between contacts of a powered device and contacts of an unpowered device as they are connected or disconnected, as recited by claims 8 and 25.

Accordingly, for at least all the above reasons, claims 8 and 25 are patentable over the prior art of record. It is therefore respectfully requested that the rejection of these claims be withdrawn.

Conclusion

All rejections having been addressed, it is respectfully submitted that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,



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